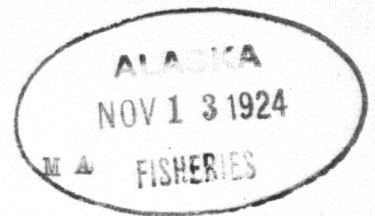


DEPARTMENT OF COMMERCE  
BUREAU OF FISHERIES

Seattle, Wash.



October 9, 1924

The Commissioner of Fisheries  
Washington, D. C.

There is inclosed, herewith, a report on streams in Southeastern Alaska, visited during 1923, by Warden, H. H. Hungerford, which was forwarded to this office by Mr. Hungerford.

*Dennis Quinn*  
Agent.

Copy to Mr. Ball.

## DEPARTMENT OF COMMERCE

## Bureau of Fisheries

## REPORT ON STREAMS IN SOUTHEASTERN ALASKA VISITED DURING 1923

BY H. H. HUNGERFORD

WARDEN

NOV 13 1924

FISHERIES

*Extracts made and put in various jackets*

APRIL 19, 1923

REDOUBT LAKE

BARANOF ISLAND

*Notes H.H.H.*

Portaged the canoe over the falls and paddled to N. E. end of lake some 6 to 7 miles, found a good size stream entering at that point. The Banks averaged 150 feet apart stream 75 feet on ripples which were knee deep at time of visit. Went up about a mile where it split into three branches which united again some distance above. This stream heads in a country of abundant snowfall and no doubt has plenty of water at all times. The gravel is clean and ideal for spawning salmon. No fish of any kind observed at time of visit. There are several other large streams entering the lake but were not visited. Later local fishermen reported an extra good escapement into the lake. Cannery men state since Bureau has maintained a stream guard at Redoubt, their receipts from that locality have been much smaller than in years previous. Expressed an opinion that the lake can be brought back to its former state.

May 18, 1923

Baranof Island

Nakwasina Stream is quite large 200 feet or more wide. Could only be waded with difficulty on ripples at time of visit. There are large flats the creek coming out of flat country is probably  $2\frac{1}{2}$  miles long, beginning with a large waterfall several hundred feet high. The gravel in the stream has a blue color, but is clean and very suitable for spawning salmon. In the various sloughs were found stakes to which the fishermen had fastened their nets during the past years. One half mile or more inside the markers. Local fishermen state this is one of the best streams in the district for Humps, Dogs and Coho.

May 9th, 1923

Chicagof Island

Lake Anna is a salt water lagoon in Klag Bay. In its eastward there is a lake several square miles in extent; 300 yards back, 15 to 20 feet above sea level the outlet carries considerable water and is not very steep. There is a fall of about 10 feet at the lake which salmon can easily jump. This outlet is obstructed by timber cut to clear a way for a power line. Took the matter up with the people responsible who promised to have it removed. Local fishermen credit this lake with a fair run of red salmon

April 27th, 1923

Baranof Island.

Head of Crawfish inlet L. Arm has several streams but they are all rather steep and are probably not used by spawning salmon to any great extent.

April 29th June 3

Indian river joins the southern boundary of the park at Sitka. Is a fine stream some 6 to 8 miles long having two branches about 4 miles back. Has an abundant supply of water the year round, excellent gravel for spawning salmon. Found no lakes, if they exist they would be small. The Sheldon Jackson School maintains a dam across this stream about onehalf mile from its mouth. There is a fish ladder over the dam, but according to local inhabitants it is very inadequate as the run of this river has decreased greatly in late years.

April 23, 1923

Explored stream in head of N. Arm Crawfish Inlet. Fair sized, good gravel bottom, snow fed will have an abundance of water all summer. Ascended about a mile, no sign of any lakes. Is credited by local fishermen as producing a fair run of Coho and dogs.

April 26th, 1923.

Explored small stream on large island in Crawfish Inlet. Has a fair supply of water and easy for fish to ascend. Coming out of a small lake  $\frac{1}{4}$  mile back and a very much larger lake another quarter mile further on. The water shed of these lakes is not very great, but a fair supply of water will be flowing throughout the year. Found evidence of fishing last season about 100 yards back as the stream is small they no doubt caught all fish that came along while the net was in place. Local fishermen credit this stream with a fair run of red fish in the past but is now nearly exhausted.

July 13

Falls Creek is 1 mile below the entrance to Red Bluff Bay. The stream which is quite large comes directly into salt water over a fall of some 6 to 8 feet. The lake is about  $\frac{1}{2}$  mile back, is long and narrow. In years past this stream carried a considerable run of reds, but owing to favorable fishing conditions at the mouth of the stream, has been about exhausted. Even nowadays owing to its location nearly every passing seiner boat runs in makes a haul in front of the falls and has drifted outside the markers, all within a very few minutes and is on its way again. There were 5 native seine boats operated by oars fishing in front of this stream, at the time of our visit who said that there were practically no fish to be caught. Stated that the traps caught them all before they reached the stream. When asked if catching the fish in a stream didn't have something to do with the scarcity, would not admit that such might be.

July 12 - 24.

Baranof Island.

Lake Eva Stream carries a considerable volume of water. Comes out of two rather large lakes about a mile back from the salt water. Must have considerable watershed for even during the last season, which was very dry, the flow of water was good. The bed of the outlet runs over mossy rock with practically no gravel. All spawning fish must enter the lakes and spawn in the feeder streams.

On July 12, there was an excellent showing of salmon at the mouth of the stream, reds, humps and dogs, but as no stream watchman was available and the natural conditions favorable, a number of the fish for this stream were caught inside the markers.

On July 24, no salmon were noted at the mouth or up the stream.

Cutthroat and Dolly Varden were very abundant in and at the mouth of the stream on both visits.

July 20.

Creek at Deadman's Reach, Peril Straits, has a number of branches, all rather large but only one had water enough for salmon at the time of our visit, and that could accommodate but few. Is a series of streams coming out of flat country and dependent on abundant rainfall.

Probably has a run of late dogs and coho; is not likely to be an early stream. No salmon observed at time of visit.

July 23.

St. John Baptist Bay has a small stream coming in from the left as you enter, and a larger one at the head of the bay. The larger stream was very low at the time of our visit, but has good gravel, and with rainfall can accommodate a large number of fish.

No fish were seen in the stream, but noted a few around the mouth.

Passed a seine boat coming out of bay as we entered, but his net was dry; had not hauled in the bay as the school of fish was too small.

July 24.

Kelp Bay, Middle Arm. Very good stream, too swift and deep to wade at time of visit; comes out of a deep, level valley with rather narrow outlet. There is considerable spawning area on the large flats in front of this stream. Only disturbed for a very short time at extreme high water.



Baranof Island.

Humps and dogs were entering the stream at the time of our visit, also a very good showing in the salt water at the mouth of fish about ready to enter.

Dry weather does not affect this stream; has a very high watershed with considerable snow.

July 24.

Kelp Bay, South Arm, has two very large streams coming in from different directions, with their mouths close together. The one coming in from the right as you enter has a good flow of clear water, clean gravel bars coming out of a wide, level valley 10 to 15 miles long. No doubt is an important spawning stream.

The other carries a heavy volume of muddy water and is rather swift. It is doubtful if salmon can use this stream for spawning. Evidently has its source under a large glacier which cannot be seen from salt water.

There were no fish to be seen in these streams at time of visit but a number of seine boats were cruising around who evidently must have been getting some fish.

July 25.

Admiralty Island.

Wilson Cove has a very large creek with good gravel bars but with very little water at time of our visit. No fish to be seen in the stream; a small school of humps around outside.

Some 15 to 20 years ago this was considered to be the best Humpback stream in this section, furnishing the canners who brought their seiners here to camp for weeks, with many hundreds of thousand fish. Later on, traps were placed in the bay on either side of the stream's mouth and at the present time this stream is almost barren of fish. The traps are no longer fished, as they do not pay, and it is visited by seiners only occasionally, who remember its past history.

It is a very fine stream but liable to a shortage of water during very dry years. Could no doubt be built up again. Comes out of a straight beach line and is hard to place markers that will designate the closed area around the mouth of the stream.

July 25.

Whitewater Bay has a very good level stream at its head on the left hand side coming into the bay. The stream empties into a deep salt water lagoon connected by a channel deep enough at high water for the entrance of large seine boats.

Admiralty Island.

This they make a practice of doing and can haul in the lagoon unseen by anyone outside.

The fish congregate in the lagoon before entering the stream and fall easy prey to the seiners who make it their business to be along at about the right time. The water in the stream was rather low at the time of our visit but on an ordinary year fish should experience no difficulty in getting up.

There was a sprinkling of humps and dogs in the lagoon but none in the stream.

Is fished occasionally by trout seiners for Seattle market.

July 25.

Chiak Bay. Has an extra large stream, level and wide, on the right hand side at its head. There is a very good chance for seiners to haul at the mouth of this stream without being observed by anyone outside in the bay.

Was sufficient water for fish to enter, and some few humps and dogs were already above tidewater, with quite a few working back and forth with the tide, while others were showing outside in salt water. If not disturbed, this stream received a fair amount of early spawners.

Dolly Vardens with a sprinkling of cutthroat were very numerous in the lower reaches of the stream, some of them quite large.

Is a favorite stream with men who make a business of seining trout for Seattle market.

There is a small creek on the left side of the bay which was almost dry at time of visit; perhaps during the rainy season has water enough to be used by dogs and coho, and perhaps a few humps on a wet year.

July 26.

Hood's Bay, North Arm. Has two rather small creeks at its head, coming through large flats and having a common mouth on salt water.

A few dogs had got into the streams but there was hardly enough water in either one to accommodate very many. Noted quite a few fish working in with the tide, as well as several schools outside in salt water. Dolly Vardens very large and numerous.

Hood's Bay, South Arm. Has three streams at its head; on the

Admiralty Island.

right is a small stream, water rather low. Had no salmon at time of visit; will be used by them when water is more plentiful.

At the head, a stream drops over two falls, the first about 10 feet high, a second about 15 feet, just back of tide water. Salmon could not get over.

On the left is a fair sized stream, the water being rather low at time of visit. Several hundred dogs were spawning on bars, several thousand in the various holes. Dolly Vardens were plentiful, some very large.

Numerous dogs jumping in salt water at head of the bay, but as several seiners were cruising around the most of them were perhaps caught after our departure. It was a noteworthy fact that when a fishery boat was in sight very few seine hauls were made. Upon entering a bay, we always met the seiners coming out.

Both arms are frequented by trout seiners.

July 29.

Fishery Point has a good sized creek on either side coming out of rather extensive valleys. Did not land at either but they showed a very good flow of water. Local fisherman state that they support good runs of fish and if these streams were not there the two traps along this shore would do very little. They are both more than the legal distance from the streams.

August 6.

Etolin Island.

Olive Cove Creek has two falls at high water level, the first one about 10 feet and back 100 feet, another 5 feet high; both easily ascended by fish. The stream from the falls back several miles is 100 feet or more wide, 4 to 5 feet deep, with a rather sluggish current.

This section of the stream had a great many humps in it at time of our visit--100,000 or more. They had not begun to spawn, were evidently waiting to ripen.

July 14.

Kuin Island.

Gedney Harbour. Has two small streams which were nearly dry at the time of our visit, and it would be impossible for a salmon to ascend either creek till after considerable rain had fallen.

There were a few dogs in the bay but it was 30 days or more before any rainfall made these streams available to spawning salmon.

Local people state that in years past this locality has supported a good run of dogs and humps.

Two mild, rather snowless winters have evidently exhausted the reserve water supply of these streams.

July 5, Aug. 14, Aug. 31.

Prince of Wales Island.

Keegan's Cove is a salt water lagoon on north side of Moria Sound. The stream enters the upper end of the lagoon, coming through a sort of sluice which has cut out on one side of a rocky reef which runs across the stream. A man standing there could easily catch with a dip net all the fish as they come along. The lakes, one of which is quite large, are only about  $\frac{1}{2}$  mile back. The stream was very low during the months of June and July, and it is doubtful if any of the early fish reached the lakes. However, rains in August made it possible for them to enter the stream and, according to the stream guard, there was a good escapement of all varieties of salmon.

June 22, Aug. 28, Sept. 20.

Karta Bay. Karta River is a fair sized stream, about 3 miles long, coming out of several large lakes.

There were reds and dogs showing June 22 when the stream guard was placed. All varieties of salmon spawn in the stream. The sockeye and coho go on into the lake to spawn later, in the streams running into the lake. On Aug. 28 dogs and humps were very numerous spawning in the stream.

On Sept. 20 dogs were still numerous spawning in the stream, and coho rather numerous in the holes on their way to the lake.

This is a very important stream and should always have a guard if possible for at least 3 months. Fishermen in this locality are very numerous.

July 5.

Dora Bay has a fair sized lake about  $\frac{1}{2}$  mile back from salt water, but when visited the outlet stream was too small to allow fish to ascend.

A school of several hundred sockeye were trying to enter. As there had been no rainfall for more than a month, no early fish were able to enter the lake. There is another stream coming in on the right side but it is obstructed by 20 ft. falls, about 250 yards back, and could accommodate but few spawning salmon.

June 22, Sept. 8.

Prince of Wales Island.

Dolomi. Has a good sized lake some 300 yards back from the beach, and a stream coming in to the lake outlet from the ~~left~~<sup>right</sup>, about half way up. The lake is used by the red and coho while the dogs and humps spawn in the ~~left~~<sup>right</sup> branch. There was a fair escapement this year but they were delayed by a very dry season. This particular section of country has had a very slight snowfall for the last several years and is bound to have its effects on the spawning streams.

There were still salmon in the bay on Sept. 8, and local people say that dogs and coho enter the stream until well into the winter.

In years past many thousands of red salmon have been caught in part of this stream, and the run this year was a mere shadow of those in the past.

Like too many of the southeastern Alaska streams, it is a simple matter, if no one interferes, to catch every fish that tries to enter this stream.

Sept. 20.

<sup>G-1</sup>  
Kassan Bay. Twelve Mile Arm, at its head, has large flats and a fair sized creek bed with very little water in it at the time of our visit. Could be easily waded anywhere, evidently dependent on rainfall. During a normal season must have a good flow of water.

There were a few thousand humps spawning on the bars and a number of dead spawners on the banks, mostly dogs.

Harris Creek, one half mile above Hollis, has two branches. The one on the left is shallow and at time of our visit had very little water in it, but showed a sprinkling of humps and dogs spawning.

The main creek on the right has a dam across it, placed there by a gold mining company which is operating at the present time.

There is a fish ladder in place and in good repair, seemed efficient, although saw no fish above the dam or any make the trip while we were there.

The holes below the dam held several hundred coho and a few humps and dogs.

July 27.

Tenakee Inlet streams.

Chicagof Island.

Tenakee Inlet is some 30 miles in length and has about 12 streams, some of them quite large, all coming in to salt water on the southerly



side. As they are not named, will designate by number, starting at the entrance and working west.

#1, or 417, is a small creek several miles in length, snow-fed. Maintained a fair supply of very clear water throughout the summer, and has a good gravel bottom. Geo. T. Meyer Co. of Chatam had a file trap the lead of which was directly across the mouth of this creek. We inspected this creek July 12, July 27 and Aug. 4, but were unable to find a single salmon in the stream. Local inhabitants maintain it is a salmon stream but were unable to swear to the fact.

The fact of the matter is that the trap caught all the fish that would have ordinarily entered the stream. No doubt later in the season dogs and coho will enter to spawn.

Dolly Varden rather numerous and easily seen in the holes.

#2 - 416. Rather a small stream with big flats. Water was very low. Went up about  $\frac{1}{2}$  mile and saw but two dog salmon. Carries plenty of water on a normally wet year.

#3 - 415. A large creek bed but very little water at time of visit. Has several thousand acres of flats and is opposite the town of Tenakee. Went up with the tide several miles. Did not seem to be any fish in stream, but were rather numerous in tide water and were working back and forth with the tide about ready to enter. Humps and dogs. This stream during a normal year must be quite large.

#4 ----. Has a good creek bed and runs back a considerable distance through level country, but contained practically no water. Evidently a wet weather stream only. Contained no fish of any kind.

#5 - 414. Crab Bay. The first stream on the left when entering comes down over large flats. Several miles in extent, is of good size but water was low at time of visit. There were no fish spawning but several hundred humps had collected in a large hole at head of tide water.

#6 - 413. Crab Bay at its head has three medium sized streams coming out of the woods at different points and combining on the rather extensive flats into one large stream. They were all short of water. The only fish observed were in a hole at half tide, some 50 humps in the lot.

#7 - 412. Head of second bay has extensive flats and a very good creek, an excellent flow of water for such a dry season. No fish spawning on bars. 2 to 3,000 humps in a hole at high water.

#8 - 411. Head of third bay has extensive flats, rather a large stream with a good flow of water. It branches three ways about a mile back, all of them useable by spawning salmon for a considerable distance. There were several thousand dogs spawning on the bars of the united creek. Some 10,000 or more humps were in the holes at high water and more coming up.

#9 - 410. Head of fourth bay has extensive flats and the best and largest creek inspected in Tenakee Inlet. It branches two ways about a mile back from high water. Has an abundance of water and extensive spawning areas. There were several thousand dogs and a few humps spawning on the lower bars. There were some 20,000 to 30,000 humps and a few dogs in the holes at high water mark.

The showing of fish in front of all the streams visited in the inlet was good, and as the Bureau has maintained a patrol here, the chances of escapement into streams with sufficient water to allow fish to ascend were very good.

May 10.

Chicagof Island.

Slocum Arm. There are three large streams in Slocum Arm. One in head comes out of a level valley which runs back several miles and is well supplied with snow. No doubt has a good supply of water during the year. Good gravel for spawning fish.

The second one comes in from the right about 600 yards from the head of the bay. Seemed rather steep and perhaps could not be ascended by salmon very far, although is very well supplied with water.

The third also coming in from the right is some 5 miles from the head of the bay, starts 3 miles back from the beach, with a waterfall several hundred feet high and runs through level country to the salt water. Has a wide creek bed and an abundance of water. Is credited locally as being the best hump and dog stream in the district.

There are no lakes accessible to salmon on any of these streams.

July 23.

Soluri Bay, <sup>see memo</sup> Surge Narrows, has a fair sized stream entering it, with a good flow of water. Is rather steep. Has a bottom of mossy rock, no gravel. Comes over a series of 20 to 50 ft., falls about  $\frac{1}{2}$  mile back from the beach. Not at all suitable for spawning salmon and probably not used by them. Is an ideal site for a small water power project.

May 16.

Klag Bay. Small stream and small shallow lake covered with lily pads, entering from south side. Flow of the stream is small and all fish could be easily caught. Fair run of reds reported.

May 12.

Kalinin Bay. Has a small shallow stream coming in from the head. Has about  $\frac{1}{2}$  mile of mud flats in front rather unimportant. Reported having a run of small sized dog salmon. Would have very little water during dry year.

June 7, July 19, Aug. 3.

Pavlof Harbor. Has a lake discharging over 15 ft. falls directly into salt water. Salmon do not have much difficulty in ascending providing water is abundant. Lake is about a mile long, with quite an area of submerged grass flats. Went up the largest stream flowing into the lake Aug. 3. Observed a few red salmon in holes. All varieties of salmon use this stream. Dogs and silvers seemed to predominate at the falls where they could be seen. Cutthroat trout and Dolly Vardens were very numerous, both below the falls and at the entrance of the streams coming into the lake. Water got rather low during this season, which was a very dry one.

May 11.

Leo Anchorage. Has a small lake 50 yards back from the beach. Rather a small flow of water in outlet; most of it escapes through beach gravel. The feed stream is of fair size and winds around in a small flat valley, affording a considerable spawning area.

Local fisherman claim a small run of red salmon and a run of coho in fall.

May 14 - 16.

Ford Arm. Took canoe up the creek about one mile and examined lake at head. It is  $\frac{3}{4}$  mile long and  $\frac{1}{4}$  mile wide, only 8 to 12 ft. deep for first  $\frac{1}{4}$  mile, much deeper at head. One large and four small creeks enter the lake. All have good gravel and ample spawning areas.

According to local fishermen, there is an early run of red salmon in this stream. May 15 - 20. From later advices on this stream, found several hundred reds were caught this year. Was less than usual. We

placed markers for first time on this stream May 14. Observed several steelhead in stream at time of visit. Superintendent of Cape Edwards cannery claimed steelhead rather numerous in April.

May 15.

Falcon Arm has only a very small stream at its head and it is doubtful if it can accommodate but few spawning salmon. Dogs mostly.

July 26, Aug. 4.

Basket Bay. Has rather a peculiar stream coming out of a lake about a mile back and running, at times, underground. Very little sand or gravel has been brought down, allowing the stream to discharge directly into deep water.

A stream guard has been maintained here for several years and a fair take of sockeye is reported. Coho also use this stream. Probably rather numerous during the fall of the year. There is a sprinkling of dogs all the time.

The fish must necessarily spawn in the streams coming into the lake, but as the country is very rough could find no one who had ever been to its head.

Trout are very numerous in the stream and lake, and is often visited by fishing parties.

#### Mainland - Behm Canal.

Aug. 16, Sept. 17.

Short Bay. Has a large rapid stream coming out of a lake about a mile back from salt water. Salmon can easily ascend at any time.

On Aug. 16 large numbers of humps and dogs were noted in the various holes on their way up stream. No spawners were noted below the lake. The fish no doubt do all their spawning in the streams coming into the lake, as the outlet has no gravel bars.

Salmon were rather numerous on the flats during our visit. Were being watched by a seiner who was preparing to make a haul, but on our arrival made a hurried departure.

Aug. 16.

Jones Creek. Has a wide, level bed and considerable water with a slight muddy tinge. Were quite a few humps and dogs spawning on the bars and a large number of dead spawned out fish along the banks, showing the escapement of early fish had been good.

The large number of snags on the flats around the mouth of this stream would make it rather difficult to seiners.

Aug. 17.

Grant Creek, three miles south of the Unik river, is very large, almost a river--much too deep to wade. The water is slightly muddy. Judging from the back country, it drains a large area.

Went to the head of tide water about a mile back, through wide flats. There was an excellent showing of spawning humps and dogs and thousands of dead spawners along the banks. Is no doubt a very important spawning stream and had a good early escapement. Owing to the large number of snags on the flats around the mouth of the stream, it is fairly well protected from seiners.

Aug. 17.

Fitzgibbon Cove has a very small creek and when visited did not contain sufficient water to enable salmon to ascend.

During a normally wet season, a few fish perhaps use this stream.

Aug. 17, Sept. 16.

Sach's Cove stream is a very good one for the first mile. Has a wide bed with clean gravel and plenty of water. Comes through a canyon about a mile back which is accessible to salmon, but none were noted above that point.

At the time of our first visit, spawning humps and dogs were about as thick as they could be and be able to find room to spawn. There were still quite a few fish spawning when we made our last visit. Noted a dead spawned white king salmon on a gravel bar Sept. 16.

A trapper who has lived several winters in this locality says there is a heavy run of coho salmon which continues well into the winter. States that last winter it was possible to obtain unspawned coho until December 25.



Mainland - Behm Canal.

Aug. 17, Sept. 16.

Six miles north of the Chickamin river, there is a creek noted by Capt. Ivor N. Stensland of the Petrel, early in July. Had a good showing of spawning humps and dogs at that time.

The entrance is narrow and continues so for several hundred yards back, opening up into a rather level valley back for several miles. Has had an abundant supply of water all through the dry season.

Went to the head of the spawning area Sept. 16. Was a fair showing of spawning humps and dogs and the bars were covered with dead, spawned out fish. Several hundred nearly arrived coho were to be seen in the holes at that time.

This creek had the earliest spawning fish noted during the 1923 season in this district.

Aug. 18.

Walker Cove has a very fine creek coming in on the south side; has a good supply of clear water and clean gravel. Comes out of a wide level valley which runs back several miles.

Had large number of humps spawning on the bars; only an occasional dog noted.

At the head of the cove there are two small creeks, rather rapid, with only a few fish in them.

Fish rather numerous outside the small streams, but will probably drop back and enter the larger one.

Sept. 14.

Smeaton Bay, Wilson Arm. There are two streams at the head of this arm. The one on the right is rather small but has a good flow of water and at the time of our visit had quite a few spawning fish beside a number of dead spawners on the banks. Humps and dogs.

Coming in on the left, through about a mile of grass flats, is a very large stream, almost a river, which branches two ways at the timber. The right branch has very muddy water and it is doubtful if salmon ascend it at all. The main stream is much larger and comes out of a wide level valley which native residents state extends back some 10 to 12 miles, where it has a series of falls impassable to salmon.

Spawning salmon were fairly numerous on the bars, and dead spawners scattered all over the wide flats. A new run of dogs was making its way up the bay.

This stream is chiefly notable for its late run of large dog salmon. Coho are also abundant in the fall. These large mainland streams protect their late runs of fish, as there is abundant rainfall at that time of the year, making a perpetual freshet. This condition makes fishing with any sort of gear ineffective and very difficult.

Sept. 14.

Smeaton Bay. About two miles from the entrance, on the left hand side there is a stream of considerable size which we did not explore. Native residents say it supports a considerable run of humps and dogs, with coho in the fall. Always has a good supply of water. Around the mouth of this stream, which comes out of a bold shore, is said to be one of the favorite seining grounds where a quick haul may be made, the tide when right drifting the boat and net outside the 500 yard line before the operation is completed.

Bakewell Arm is about half way up the bay on the right hand side. Has two small creeks at its head of little importance during the dry season. Late in the fall supports a considerable run of dogs and a few coho.

Sept. 14.

Cheat's Cove has an excellent stream coming out of a series of lake about  $\frac{3}{4}$  of a mile back from salt water. There were perhaps more spawning fish in this stream in proportion to its size than any we visited in this district.

Were not able to follow around the lakes but from the general appearance of the land there must be large spawning areas in streams coming into the lakes and a very good chance, judging from the fish in sight, that they also were well supplied with spawners.

Humps mainly, with scattering dogs spawning. Dogs and coho were numerous in salt water, ready to enter.

Sept. 15.

Rudyard Bay. There are two streams in south arm, both of which are rather small but have a good supply of water and a fair amount of spawning humps and dogs. There were numerous coho entering at time of our visit.

At the head of the bay coming in from the North is a small river having slightly muddy water. Went up several miles with a canoe. Good showing of spawning humps and dogs on the bars, and numerous fresh fish coming in.

This stream comes out of a level valley and no doubt extends back a good many miles, being a very important spawning ground. There are several other small streams in the bay but did not explore them. They all carry a few fish.

Mainland - Boca De Quadra.

Aug. 21.

The outlet of Hugh Smith Lake is very short and its mouth forms an excellent seining ground, as the fish before entering must spend some time in brackish water before entering the lake.

The stream guard reported a small but steady run of fish, reds and humps.

A small salmon known locally by trollers as blackmouth (immature kings in second year) ~~are~~ very plentiful around the mouth of this stream. Do not think they are from the lake; am more inclined to credit the two large streams in the upper bay, which are supposed to have an early run of kings.

Humpback Creek has a very narrow entrance, inside of which is a wide gravel flat, back  $\frac{1}{2}$  mile or more to the two branches of the stream, the one on the left being much the larger. At time of our visit, fish were noted in salt water at the mouth and in the holes of the left branch; none to be seen in right hand stream.

The fish had only recently entered as no spawners were noted. Local people said the creek had been too low for fish to enter before the recent rains.

Found an old drag seine and gillnet about a mile up the creek which had been used to fish a large hole in stream in past years. They are rotten and useless now.

Stream in head of Mink Arm is very small and of little importance.

Aug. 22.

At the head of the main bay is a fine large stream, almost a small river, the water of which has a slight muddy tinge. Comes out of a large, fairly level valley and over a mile or more of mud and grass flats.

There was a fair showing of spawning humps and dogs on the riffles. The banks and bars contained a large number of dead spawned out fish.

Not many new fish were noted coming up the stream or around its mouth but according to natives who are residents of this section there is a run of kings in May and June, and humps, dogs, coho and steelhead until late in the fall.

Aug. 23.

Head of Marten Arm. Has the largest stream in Quadra. Is quite level back several miles and possible to ascend with a canoe that distance on high water.

The water has a muddy tinge but flows over good gravel bottom; not possible to wade with boots at the time of our visit.

There was a considerable showing of spawning fish and dead spawners on the banks, but nothing to what a stream of this kind should support. Could handle many hundreds of thousands of spawning salmon, if they could be allowed to reach the stream.

Mainland Shore.

Aug. 7.

Anan Creek is too well known to need any description. The escapement for this creek to be seen at time of our visit was very small as compared with that of last year.

The trap outside has caught a great many fish this year and is altogether too close to the stream. If a proper sort of a survey was made instead of placing the markers by guess, this trap would be moved far enough away to allow a great many more fish to escape.

Aug. 21, Sept. 13.

Lucky Cove has a small stream coming into it, which on our first visit, Aug. 21, had not sufficient water in it for salmon to ascend. On Sept. 13, there was a good flow of water and several thousand dogs and humps spawning, also a supply of new fish coming in.

Booth Fisheries Quadra cannery had a floating trap in the cove that caught 133,675 fish, which, in my opinion, was much too close to the stream; but as it was nearly dry and fish could not get up, did not measure the distance. The trap was taken up Aug. 27. Next year, the distance should be measured so that no misunderstandings can arise. Gives the seiners cause

for complaint that the laws are enforced against them but not against the large companies.

Revillagigedo Island.

Aug. 25.

Ward's Cove stream has a fair sized bed and heads about a mile back in a series of small lakes of no great elevation. Salmon can easily reach them.

At the time of our visit the water in this stream was very low and we saw but very few dog salmon in the stream. There were a few around the mouth in salt water. Local inhabitants state that in normally wet years the stream supports a fair run of dog salmon with coho in the fall, but during dry years it always gets very low as it has no snow watershed that amounts to anything.

Sept. 3.

Carroll Inlet. There are two large streams at the head of the inlet. The one on the right comes out of a lake some distance back and down over a series of falls which are impassable to salmon; is an ideal power site.

The stream at the head winds out of a level valley which runs back 10 to 15 miles; is too large to wade with boots, and had a very good showing of spawning humps and dogs. Will have a run of coho in the fall.

Capt. Stensland reported no fish in stream Aug. 10, but a good showing outside.

This is another very fine stream which could support many more hundreds of thousands of spawning salmon than it had this year.

Aug. 12 - 16.

Shrimp Bay, according to the chart, shows three very good streams. From the salmon spawning standpoint, they are of very little importance.

On entering the bay, coming in from the right are two 50 to 60 ft. waterfalls, dropping almost directly into salt water out of Orchard Lake. Is an ideal power site; altogether impassable to salmon.

The creek in the head of the bay has several hundred yards of spawning bed on which some 1500 dogs were spawning. From this point, divides into three branches and is too steep for salmon to ascend.



Quoted in full  
in Ball's letter  
of October 16.

The other creek has passable falls at its mouth and is a fair sized stream, but at the time of our visit did not contain a single salmon.

Owing to the abundance of fresh water, large numbers of fish school in the bay, making it a favorite ground for seiners, but the fish must go elsewhere as the streams are not capable of receiving them.

Aug. 11 - 16.

Traitor's Cove. The upper half of this bay is a lagoon with a narrow entrance and is impossible to enter except on high or low water slack. At the upper end of the lagoon is a fine large stream with a good flow of water during the dry season which supports a large run of dogs and humps. As far as we could judge, the escapement had been good.

The seiners occasionally take advantage of the fact that no one can enter the lagoon except on slack tide and fish around the mouth of the creek on Sundays and week days as well, by waiting until the tide makes the pass impossible for boats to enter. They are then sure of not being interrupted during an interval of six hours. The Bureau should have the power of closing such areas to all fishing, as the 500 yard limit covers but the upper part of the inner lagoon.

Aug. 18.

Ella Point Creek comes into the salt water over a series of falls almost directly into salt water. The lakes are perhaps 200 yards back at an elevation of 60 to 75 ft.

The water was rather low at time of our visit but noted several salmon, which had nearly reached the lake. Local inhabitants stated when water was more abundant quite a few salmon succeeded in making the climb, mostly reds and coho, with a lesser number of humps and dogs.

Sept. 16.

Portage Bay, known locally as Swedish Meadows. Has a tidal slough running back through grass flats 5 or 6 miles. The tide was low at time of our visit, so did not go back over a mile.

Saw very little evidence salmon, although there are a number of small streams suitable for spawning coming into the slough on either side. Probably never has been of much importance.

Bell Island.

Sept. 16.

Bell Island creek at Hot Springs is rather steep where it comes out of a lake about a mile back, and only a few coho succeed in reaching the lake. In its lower reaches there were numerous humps and dogs spawning.

Local inhabitants state that only in the last couple of weeks has there been sufficient water for these fish to ascend. There are still a few fish in salt water waiting to enter the creek.

*Howard H. Hungerford*